

Application No. 10/709,782
Technology Center 3767
Amendment dated October 24, 2007
Reply to Office Action dated May 25, 2007

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

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Listing of Claims:

Claim 1 (Currently amended): A device for detecting a chemical or biological agent and treating a person if the person is exposed to the agent, the device comprising:

a unit sufficiently small and light-weight to be carried by a person, the unit comprising at least one antidote for at least one agent selected from the group consisting of chemical and biological agents, means for selecting the at least one antidote, means for delivering the at least one antidote into the body of the person, and means for communication between the selecting means and the delivering means; and

means for detecting the presence of the at least one agent in a fluid sample near the person, the detecting means being in communication with the selecting means and operable to detect the agent in the fluid sample, identify the at least one antidote as being capable of counteracting the agent and if the agent is detected then cause the delivering means to deliver the at least one

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antidote into the body of the person;

wherein the delivering means comprises:

a tube comprising a freestanding tube portion through which the at least one antidote flows;

means for vibrating the freestanding tube portion of the tube at a resonant frequency thereof that varies with the density of the at least one antidote flowing therethrough, the Coriolis effect causing the freestanding tube portion to twist while being vibrated at resonance, the freestanding tube portion exhibiting a degree of twist that varies with the mass flow rate of the at least one antidote flowing therethrough;

means for sensing movement of the freestanding tube portion of the tube, the movement-sensing means producing a first output signal based on the resonant frequency of the freestanding tube portion and a second output signal based on the degree of twist of the freestanding tube portion;

means for measuring elapsed time during which the at least one antidote has flowed through the tube; and

means for stopping flow of the at least one antidote through the tube in response to either of the first and second output signals from the movement-sensing means. ~~person.~~

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Claim 2 (Canceled)

Claim 3 (Original): The device according to claim 1, wherein the delivering means is operable to deliver the at least one antidote subdermally, intravenously, subcutaneously, or intramuscularly.

Claim 4 (Original): The device according to claim 1, wherein the unit comprises a plurality of antidotes and the selecting means selects among the plurality of antidotes.

Claim 5 (Original): The device according to claim 1, wherein the selecting means is operable to select more than one antidote, and the delivering means is operable to deliver the more than one antidote into the body of the person.

Claim 6 (Previously presented): The device according to claim 1, wherein the detecting means is remote from the unit and not carried by the person.

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Claim 7 (Previously presented): The device according to claim 1, wherein the detecting means is physically coupled to the unit and carried on the person.

Claim 8 (Currently amended): A device for detecting a chemical or biological agent and treating a person if the person is exposed to the agent, the device comprising:

a unit sufficiently small and light-weight to be carried by a person, the unit comprising at least one antidote for at least one agent selected from the group consisting of chemical and biological agents, means for selecting the at least one antidote, means for delivering the at least one antidote into the body of the person, and means for communication between the selecting means and the delivering means; and

means for detecting the presence of the at least one agent in a fluid sample near the person, the detecting means being in communication with the selecting means and operable to detect the agent in the fluid sample, identify the at least one antidote as being capable of counteracting the agent and if the agent is detected then cause the delivering means to deliver the at least one antidote into the body of the person; ~~The device according to claim 1,~~

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wherein the detecting means comprises:

a freestanding tube portion through which flows a portion of atmosphere surrounding the person, the freestanding tube portion comprising an internal passage containing a substance selective to the agent so that matter accumulates within the freestanding tube portion;

means for vibrating the freestanding tube portion at a resonant frequency thereof that varies with a combined density of the freestanding tube portion and contents of the internal passage; and

means for sensing movement of the freestanding tube portion and producing an output signal based on the resonant frequency of the freestanding tube portion, the output signal being indicative of accumulation of the matter and thereby presence of the agent in the atmosphere surrounding the person.

Claim 9 (Original): The device according to claim 1, further comprising means for measuring density of the at least one antidote.

Claim 10 (Original): The device according to claim 1, further comprising means for sending a signal indicating the location of the person.

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Claim 11 (Original): The device according to claim 1, further comprising means for broadcasting an alert signal to a remote location if delivery of the at least one antidote is commenced.

Claim 12 (Original): The device according to claim 1, further comprising means for monitoring biological functions of the person, identifying biological information based on the biological functions, and sending the biological information to a remote location.

Claims 13-38 (Canceled)

Claim 39 (Currently amended): A method of detecting a chemical or biological agent and treating a person if the person is exposed to the agent, the method comprising the steps of:

equipping the person with a unit sufficiently small and light-weight to be carried by the person, the unit comprising at least one antidote for at least one agent selected from the group consisting of chemical and biological agents, means for selecting the at least one antidote, and means for delivering the at least one antidote into the body of the person;

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detecting the presence of the at least one agent in a fluid sample
near the person;
if the agent is detected, sending a first signal to the selecting means;
selecting with the selecting means the at least one antidote as being
capable of counteracting the agent in accordance with the first signal;
sending a second signal to the delivering means; and then
delivering with the delivering means the at least one antidote into the
body of the person in response to the second signal;

wherein the step of detecting the agent is performed on the person
and with the unit, and wherein the step of detecting the agent comprises the
steps of:

flowing a portion of atmosphere surrounding the person through an
internal passage of a freestanding tube portion, the passage containing a
substance selective to the agent so that matter accumulates within the
freestanding tube portion;

vibrating the freestanding tube portion at a resonant frequency
thereof that varies with a combined density of the freestanding tube portion
and contents of the internal passage; and then

sensing movement of the freestanding tube portion and producing an

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output signal based on the resonant frequency of the freestanding tube
portion, the output signal being indicative of accumulation of the matter and
thereby presence of the agent in the atmosphere surrounding the person.
signal.

Claim 40 (Currently amended): A method of detecting a chemical or
biological agent and treating a person if the person is exposed to the agent,
the method comprising the steps of:

equipping the person with a unit sufficiently small and light-weight to
be carried by the person, the unit comprising at least one antidote for at least
one agent selected from the group consisting of chemical and biological
agents, means for selecting the at least one antidote, and means for delivering
the at least one antidote into the body of the person;

detecting the presence of the at least one agent in a fluid sample
near the person;

if the agent is detected, sending a first signal to the selecting means;
selecting with the selecting means the at least one antidote as being
capable of counteracting the agent in accordance with the first signal;
sending a second signal to the delivering means; and then

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delivering with the delivering means the at least one antidote into the
body of the person in response to the second signal; ~~The method according~~
~~to claim 39,~~

wherein the step of delivering the at least one antidote comprises the
steps of:

flowing the at least one antidote through a freestanding tube portion;
vibrating the freestanding tube portion at a resonant frequency
thereof that varies with the density of the at least one antidote flowing
therethrough, the Coriolis effect causing the freestanding tube portion to twist
while being vibrated at resonance, the freestanding tube portion exhibiting a
degree of twist that varies with the mass flow rate of the at least one antidote
flowing therethrough;

sensing movement of the freestanding tube portion and producing a
first output signal based on the resonant frequency of the freestanding tube
portion and a second output signal based on the degree of twist of the
freestanding tube portion;

measuring elapsed time during which the at least one antidote has
flowed through the freestanding tube portion; and

stopping flow of the at least one antidote through the freestanding

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tube portion in response to a specified amount of the at least one antidote having passed through the freestanding tube portion based on the elapsed time and the second output signal.

Claim 41 (Original): The method according to claim 39, wherein the at least one antidote is delivered subdermally, intravenously, subcutaneously, or intramuscularly.

Claim 42 (Original): The method according to claim 39, wherein the unit comprises a plurality of antidotes and the selecting means selects among the plurality of antidotes.

Claim 43 (Original): The method according to claim 39, wherein the selecting step comprises selecting more than one antidote, and the delivering step comprises delivering the more than one antidote into the body of the person.

Claim 44 (Previously presented): The method according to claim 39, wherein the step of detecting the agent is not performed on the person or

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with the unit.

Claims 45 and 46 (Canceled)

Claim 47 (Previously presented): The method according to claim 39, further comprising inserting the delivery means into the body of the person after the step of detecting the agent.

Claim 48 (Original): The method according to claim 47, wherein the step of sending the second signal to the delivering means is manually performed by the person.

Claim 49 (Previously presented): The method according to claim 47, wherein the step of detecting the agent is not performed on the person or with the unit.

Claim 50 (Previously presented): The method according to claim 39, wherein the step of detecting the agent occurs after inserting the delivering means into the body of the person.

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Claim 51 (Previously presented): The method according to claim 50, wherein the step of detecting the agent is performed on the person and with the unit.

Claim 52 (Previously presented): The method according to claim 50, wherein the step of detecting the agent is not performed on the person or with the unit.

Claim 53 (Original): The method according to claim 50, wherein the steps of sending the second signal to the delivering means and delivering the at least one antidote into the body of the person are performed without intervention by the person or others.

Claim 54 (Original): The method according to claim 50, wherein the step of sending the second signal to the delivering means is manually performed by the person.

Claim 55 (Original): The method according to claim 39, further comprising measuring the density of the at least one antidote during the

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delivering step.

Claim 56 (Original): The method according to claim 39, further comprising sending a signal indicating the location of the person.

Claim 57 (Original): The method according to claim 39, further broadcasting an alert signal to a remote location if delivery of the at least one antidote is commenced.

Claim 58 (Original): The method according to claim 39, further comprising monitoring biological functions of the person, identifying biological information based on the biological functions, and sending the biological information to a remote location.

Claim 59 (Previously presented): The device according to claim 1, wherein the detecting means comprises a substance that causes accumulation of matter when the agent is present in the fluid sample.

Claim 60 (Previously presented): The device according to claim 1,

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wherein the detecting means obtains the fluid sample from the person's surroundings.

Claim 61 (Previously presented): The method according to claim 60, wherein the fluid sample is air.

Claim 62 (Previously presented): The method according to claim 60, wherein the fluid sample is water.

Claim 63 (Previously presented): The device according to claim 1, wherein the detecting means is operable to detect the type of the agent in the fluid sample.

Claim 64 (Previously presented): The device according to claim 1, wherein the detecting means is operable to detect multiple different agents in the fluid sample and identify multiple antidotes therefor to counteract the multiple different agents.

Claim 65 (Canceled)

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Claim 66 (Previously presented): The method according to claim 39, wherein the detecting step comprises obtaining the fluid sample from the person's surroundings.

Claim 67 (Previously presented): The method according to claim 66, wherein the fluid sample is air.

Claim 68 (Previously presented): The method according to claim 66, wherein the fluid sample is water.

Claim 69 (Previously presented): The method according to claim 39, wherein the detecting steps comprises detecting the type of the agent in the fluid sample.

Claim 70 (Previously presented): The method according to claim 39, wherein the detecting step comprises detecting multiple different agents in the fluid sample and identifying multiple antidotes therefor to counteract the multiple different agents.